

LICENSE # 90

COUNTY Lewis & Clark

FILE CATEGORY IS

ACTIVE BUD CLOSED PENDING

ONE-TIME LANDFARM

FILE IN

Autoclave

GW Reports

Main

Inspections

Closure/PostClosure

Liner/Leachate

FA

Meth Control

Closure/PostClosure FA

Meth Monitoring

GW Corr Measures

O & M

GW Monitoring

Run-On/Run-Off

ADD'L DIRECTIONS

File "Groundwater Monitoring"



April 18, 2023

RECEIVED

APR 18 2023

Dept. of Enviro. Quality
Waste & Underground
Tank Management Bureau

Solid Waste Regulatory Program
Montana Department of Environmental Quality
P.O. Box 200901
Helena, MT 59620-0901

RE: Installation of Groundwater Monitoring Well South of City of Helena Landfill, License No. SW-0090

To whom it may concern:

Due to a major flood event last summer, existing landfill monitoring well HL-19-1 located south of the of the old City of Helena Landfill was damaged and needs to be abandoned and redrilled. The location of this well is shown on the attached Figure 1. Efforts will be made to install the replacement well prior to the summer groundwater monitoring event in June.

The plan to abandon well HL-19-1 will be as follows:

- Bentonite crumbles will be slowly poured into the PVC well casing. After each quarter bag of crumbles is added, the total depth of the well will be checked and compared to the volume of bentonite added to ensure the bentonite does not bridge leaving an air gap. After every ten feet of bentonite, one gallon of water will be added to the well to hydrate the bentonite and seal the well. Enough bentonite will be added to fill the casing to the ground surface.
- The steel surface casing will be removed, and the area around the PVC casing will be excavated an additional two feet and the PVC cut off below the new ground level.
- Bentonite will be used to seal the top of the well.
- Road mix will be installed and compacted in 6" lifts to backfill the excavation.
- An asphalt patch will be placed over the excavation site and blended with the existing surface.

Because this is a groundwater monitoring well, abandonment will be completed by a licensed monitoring well constructor. After the abandonment is complete, all appropriate forms will be completed and filed with the appropriate agencies.

Well HL-23-1 (to replace HL-19-1) will be completed according to the following specifications. A 6-inch borehole will be advanced to the bedrock contact at an estimated depth of approximately 25 feet below ground surface. After the borehole is advanced to the

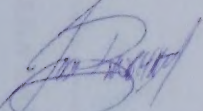
total depth, the well will be constructed with 2-inch ID, NSF-approved, schedule 40 PVC, with flush-threaded couplings, 10-feet of 0.010 factory slotted screen, and end caps at the top and bottom of the well. The well completion will include a 10/20 silica sand filter extending from the bottom of the well to two feet above the top of the screen. The remainder of the borehole annulus will be backfilled with bentonite chips or grout for an adequate annular seal. All well construction and grouting details will be consistent with State of Montana monitoring well construction regulations (ARM 36.21.800). The well will be completed with a flush mount well cover and a concrete surface seal that slopes away from the casing. After completion, the well will be developed and purged so the well is ready for the June semiannual monitoring event.

Auger cuttings will be logged by a geologist/engineer and a well completion diagram and lithologic log will be completed. In addition, the location of the well will be surveyed to a common datum for elevation and location and added to the current maps. A memo with completion details and final well locations will be submitted to MDEQ.

Any excavation materials produced during abandonment and auger cuttings produced during drilling will be placed in 55-gallon drums and transported to the City Transfer Station for proper disposal.

If you have any questions concerning this work, please don't hesitate to call.

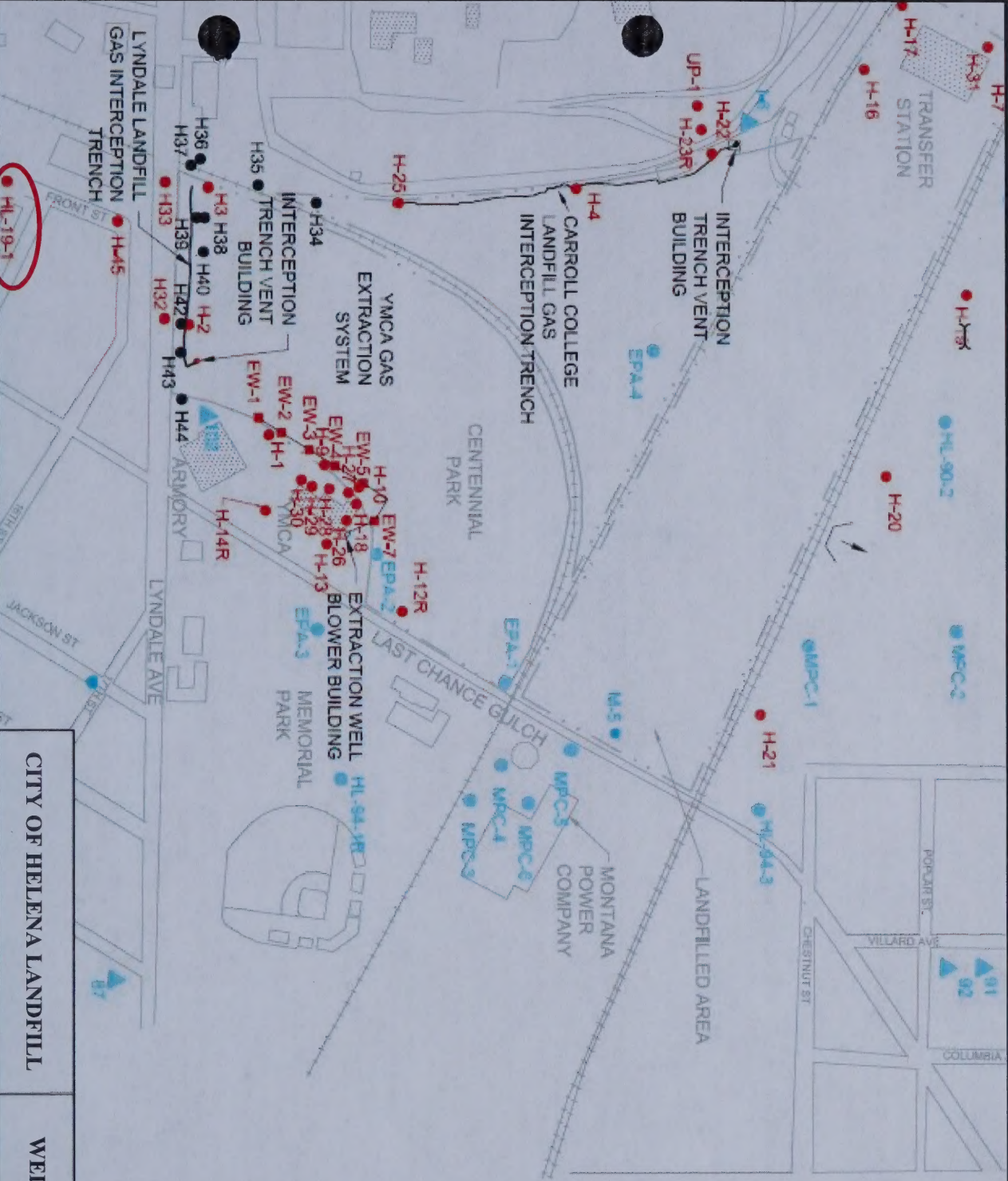
Sincerely,



Jodi Bingham, P.E.
Environmental Engineer/Chemist

Attachment

c: Ryan Leland, City of Helena
Pete Anderson, City of Helena
Mike Wignot, Hydrometrics



CITY OF HELENA LANDFILL	WELL REPLACEMENT LOCATION	FIGURE 1
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SECRET

CIA/DP/INT/100001

POST REPAIR/REPAIR/REPAIR

- 1. POST REPAIR/REPAIR/REPAIR
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- 8. POST REPAIR/REPAIR/REPAIR
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LEGEND

1. POST REPAIR/REPAIR/REPAIR





Montana Department of
ENVIRONMENTAL QUALITY

MAILED

1-30-07 JH

Brian Schweitzer, Governor

P.O. Box 200901 • Helena, MT 59620-0901 • (406) 444-2544 • www.deq.mt.gov

January 29, 2007

Mr. Ben Sautter
CITY OF HELENA
City/County Building
316 N. Park Avenue
Helena, MT 59623

**RE: CITY OF HELENA CLOSED LANDFILL – LICENSE #90
EXTENSION REQUEST APPROVAL – CORRECTIVE MEASURES EFFECTIVENESS REPORT**

Dear Mr. Sautter:

The Department has received your request for a 30-day extension of the submittal of the corrective measures effectiveness report. The 30-day extension is approved. Please ensure the document is submitted to the Department by March 5, 2007.

In the meantime, if you have any questions or comments, please do not hesitate to contact me at the Permitting and Compliance Division, Waste and Underground Tank Management Bureau, Solid Waste Program.

Respectfully,

Mary Louise Hendrickson
Environmental Science Specialist
Solid Waste Regulatory Program
Phone: 406-444-1808; Fax: 406-444-1374
Email: mhendrickson@mt.gov

cc: Ms. Jodi Bingham, Hydrometrics, Inc., 3020 Bozeman Ave., Helena, MT 59601

File: Lewis and Clark County/City of Helena Landfill (Closed)/License 90/Groundwater Monitoring

Path: G:\WUT\SWS\GWater\Responses\L & C\CityofHelena\closedHelena-eff-extapp.doc

Correspondence Slip

Project ID: _____

Requested: 1-26-07Needed By: 1-29-07Originator: mea

Org(s)/Mail Code: _____

REVIEW
ROUTING

Name

Task

Initial/Date

DurrellRichJamesreviewDD 1/26/07RT 1-29-2007

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/

Mail original via:

☒ Regular ☐ Certified ☐ Registered ☐ FedEx

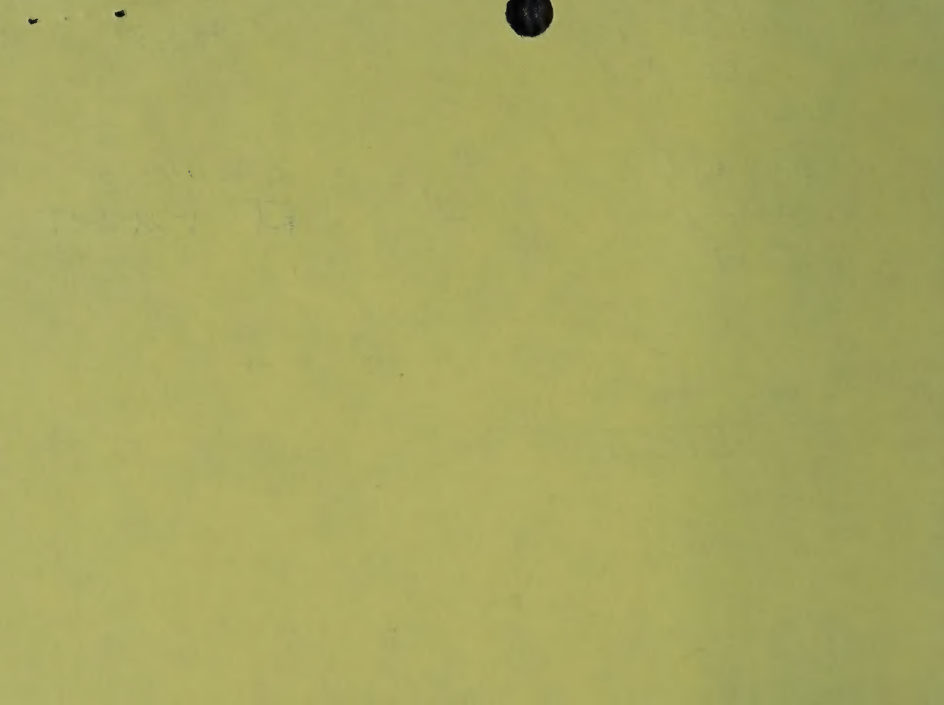
Fax to addressee at:

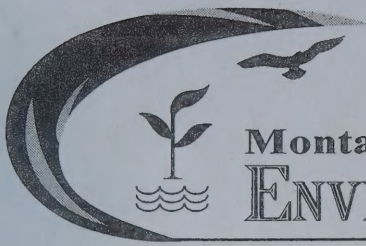
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see letter

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needed? Y N





Montana Department of
ENVIRONMENTAL QUALITY

Brian Schweitzer, Governor

P.O. Box 200901 • Helena, MT 59620-0901 • (406) 444-2544 • www.deq.mt.gov

January 3, 2007

Mr. Ben Sautter
CITY OF HELENA
City/County Building
316 N. Park Avenue
Helena, MT 59623

**RE: CITY OF HELENA CLOSED LANDFILL – LICENSE #90
REVIEW OF GROUNDWATER TREATMENT SYSTEM COMPLIANCE SAMPLING RESULTS**

Dear Mr. Sautter:

The Department has reviewed the above noted report submitted by Hydrometrics, Inc., on behalf of the City of Helena. The groundwater quality results indicate that the system meets the requirements set forth in the Department's approval of the groundwater remediation system.

If you have any questions or comments regarding this review, please do not hesitate to contact me at the Permitting and Compliance Division, Waste and Underground Tank Management Bureau, Solid Waste Program.

Respectfully,

Mary Louise Hendrickson
Environmental Science Specialist
Solid Waste Regulatory Program
Phone: 406-444-1808; Fax: 406-444-1374
Email: mhendrickson@mt.gov

cc: Ms. Jodi Bingham, Hydrometrics, Inc., 3020 Bozeman Ave., Helena, MT 59601
File: Lewis and Clark County/City of Helena Landfill (Closed)/License 90/Groundwater Monitoring
Path: G:\WUTSWS\GWater\Responses\L & C\CityofHelena\closedHelena-gwrs06review.doc

Correspondence Slip

Project ID: _____

Requested: _____

Needed By: _____

Originator: _____

Org(s)/Mail Code: _____

REVIEW
ROUTING

Name

Task

Initial/Date

Darnell

Pat

Rick

James

DAS, 1/2/07

PAK, 1/2/07

RT, 1-2-07

/

Mail original via:

☒ Regular ☐ Certified ☐ Registered ☐ FedEx

Fax to addressee at: _____

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see letter

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Special Instructions:

pls make copy for mtg

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for file needed? Y NCopy of letter for file
needed? Y N

**CITY OF HELENA LANDFILL
LICENSE NUMBER 90**

**STATISTICAL EVALUATION OF SEPTEMBER
2007 AND DECEMBER 2007 GROUNDWATER
QUALITY DATA**

MARCH 2008

HYDROMETRICS

**IS LOCATED IN THE GROUNDWATER
MONITORING REPORTS ARCHIVE,
BOX NUMBER 31**

RECEIVED 4/2/2008

**CITY OF HELENA LANDFILL
LICENSE NUMBER 90**

**DATA VALIDATION REPORT,
GROUNDWATER QUALITY SEMI-ANNUAL
SAMPLING, DECEMBER 2007**

JANUARY 2008

HYDROMETRICS

**IS LOCATED IN THE GROUNDWATER
MONITORING REPORTS ARCHIVE,
BOX NUMBER 31**

RECEIVED 2/1/2008

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LIBRARY

-2

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Hydrometrics, Inc.

consulting scientists and engineers

3020 Bozeman Avenue
Helena, MT 59601
(406) 443-4150
Fax: (406) 443-4155
www.hydrometrics.com

November 27, 2007

Ms. Mary Louise Hendrickson
Environmental Science Specialist
Montana Department of Environmental Quality
Permitting and Compliance Division
Waste & Underground Tank Management Bureau
Solid Waste Program
P.O. Box 200901
Helena, MT 59620

RECEIVED

NOV 28 2007

De.
Waste & Underground
Tank Management Bureau

RECEIVED

NOV 28 2007

Dept. of Enviro. Quality
Waste & Underground
Tank Management Bureau

Dear Mary Louise,

Enclosed for your review are the proposed monitoring sites and analytical schedule for the December 2007 semiannual groundwater monitoring at the Helena Landfill. This sampling regime is as listed in the approved Revised Sampling and Analysis Plan for the City of Helena (Hydrometrics, 2006). Sampling personnel will be attempting to sample the week of December 17, 2007. Please call if you have any questions or comments.

Sincerely,

Jodi Bingham, P.E.
Environmental Engineer/Chemist

c: John Rundquist, City of Helena
Ben Sautter, City of Helena
Mike Wignot, Hydrometrics

**HELENA LANDFILL
DECEMBER 2007 SAMPLE SITE AND PARAMETER LIST**

Site Name	Parameter
Monitoring Wells ⁽¹⁾	
INF. GALLERY	Table 1 VOC's only
MPC-2	Table 1 VOC's only
HL-90-2	Table 1
HL-94-1	Table 1
HL-94-3	Table 1
HL-06-1	Table 1
HL-90-3	Table 1
HL-90-3 (duplicate)	Table 1
HL-94-2	Table 1
I-1	Water level only
HL-99-1	Table 1
HL-99-2	Table 1
HL-90-1	Table 1
HL-99-3	Table 1
MPC-1	Table 1
I-4	Table 1 VOC's only
EPA-1	Table 1
MPC-5	Table 1
Residential Wells:	
5	Table 1 VOC's only
16	Table 1 VOC's only
40	Table 1 VOC's only
48	Table 1 VOC's only
52	Table 1 VOC's only
57	Table 1 VOC's only
62	Table 1 VOC's only
90	Table 1 VOC's only
Quality Control:	
Trip Blank	Table 1
Rinsate Blank	Table 1

(1) Monitoring wells are listed in the order to be sampled.

TABLE 1. SUMMARY OF THE DATA ANALYSIS

Parameter	Estimated Value	Standard Error	95% Confidence Interval
Intercept	1.00	0.05	0.90 - 1.10
Age	0.02	0.01	0.01 - 0.03
Gender	0.10	0.05	-0.05 - 0.25
Education	0.05	0.02	0.01 - 0.09
Income	0.01	0.005	0.00 - 0.02
Health Status	0.15	0.08	-0.05 - 0.35
Exercise	0.03	0.01	0.01 - 0.05
Stress	0.04	0.02	0.01 - 0.07
Sleep	0.02	0.01	0.01 - 0.03
Diet	0.01	0.005	0.00 - 0.02
Smoking	0.05	0.03	0.00 - 0.10
Alcohol	0.02	0.01	0.01 - 0.03
Family Size	0.01	0.005	0.00 - 0.02
Marital Status	0.05	0.03	0.00 - 0.10
Work Status	0.02	0.01	0.01 - 0.03
Health Insurance	0.01	0.005	0.00 - 0.02
Access to Healthcare	0.01	0.005	0.00 - 0.02
Health Literacy	0.01	0.005	0.00 - 0.02
Health Beliefs	0.01	0.005	0.00 - 0.02
Health Behavior	0.01	0.005	0.00 - 0.02
Health Outcomes	0.01	0.005	0.00 - 0.02

NOTE: All values are estimates and may vary slightly from the actual data.

**CITY OF HELENA LANDFILL
LICENSE NUMBER 90**

**DATA VALIDATION REPORT FOR
GROUNDWATER ORGANIC SAMPLES
COLLECTED IN SEPTEMBER 2007**

OCTOBER 2007

HYDROMETRICS

**IS LOCATED IN THE GROUNDWATER
MONITORING REPORTS ARCHIVE,
BOX NUMBER 31**

RECEIVED 10/12/2007

1. KAPITEL: ALLGEMEINE EINLEITUNG
1.1. Zielsetzung und Zwecksetzung

1.2. Zielsetzung und Zwecksetzung
1.3. Zielsetzung und Zwecksetzung
1.4. Zielsetzung und Zwecksetzung

1.5. Zielsetzung und Zwecksetzung

1.6. Zielsetzung und Zwecksetzung

1.7. Zielsetzung und Zwecksetzung
1.8. Zielsetzung und Zwecksetzung
1.9. Zielsetzung und Zwecksetzung

1.10. Zielsetzung und Zwecksetzung



Hydrometrics, Inc.
consulting scientists and engineers

3020 Bozeman Avenue
Helena, MT 59601
(406) 443-4150
Fax: (406) 443-4155
www.hydrometrics.com

August 28, 2007

Ms. Mary Louise Hendrickson
Environmental Science Specialist
Montana Department of Environmental Quality
Permitting and Compliance Division
Waste & Underground Tank Management Bureau
Solid Waste Program
P.O. Box 200901
Helena, MT 59620-0901

RECEIVED

AUG 29 2007

Dept. of Enviro. Quality
Waste & Underground
Tank Management Bureau

Dear Mary Louise,

Enclosed for your review are the proposed monitoring sites and analytical schedule for the September 2007 quarterly groundwater monitoring at the Helena Landfill. Sampling personnel will be attempting to sample the week of September 3, 2007. Well 5 is being sampled as part of the City's Action Plan for tetrachloroethene (PCE) in downgradient domestic wells. Please call if you have any questions or comments.

Sincerely,

Jodi Bingham, P.E.
Environmental Engineer/Chemist

c: John Rundquist, City of Helena
Ben Sautter, City of Helena
Mike Wignot, Hydrometrics

**HELENA LANDFILL
SEPTEMBER 2007 SAMPLE SITE AND PARAMETER LIST**

Site Name	Parameter
Monitoring Wells ⁽¹⁾	
HL-99-3	Table 1 VOC's only
HL-99-2	Table 1 VOC's only
HL-99-1	Table 1 VOC's only
HL-90-1	Table 1
5	Table 1 VOC's only

(1) Wells are listed in the order to be sampled.

RELEASE LIST
 RELEASED TO THE PUBLIC AND RELEASED LIST

Release No.	Release Date
Table 1 VOC only	11-10-90
Table 1 VOC only	11-10-90
Table 1 VOC only	11-10-90
Table 1	11-10-90
Table 1 VOC only	11-10-90

U.S. Environmental Protection Agency

Closed

County Lawrence & Clark Co.
 Facility & # City of Helena LE #90
 Closure Landfarm
 Finan Assur Liner
 GW Corr Meas Methane
 GW Monitoring O & M
 GW Reports Run - On
 Inspections
 Other: _____

**CITY OF HELENA LANDFILL
LICENSE NUMBER 90**

**DATA VALIDATION REPORT,
GROUNDWATER QUALITY SEMI-ANNUAL
SAMPLING, JUNE 2007**

JULY 2007

HYDROMETRICS

**IS LOCATED IN THE GROUNDWATER
MONITORING REPORTS ARCHIVE,
BOX NUMBER 31**

RECEIVED 7/25/2007

1. THE FIRST PART OF THE
REPORT IS A SUMMARY OF THE
WORK DONE DURING THE YEAR.

2. THE SECOND PART OF THE
REPORT IS A SUMMARY OF THE
WORK DONE DURING THE YEAR.

3. THE THIRD PART OF THE
REPORT IS A SUMMARY OF THE
WORK DONE DURING THE YEAR.

4. THE FOURTH PART OF THE
REPORT IS A SUMMARY OF THE
WORK DONE DURING THE YEAR.

5. THE FIFTH PART OF THE
REPORT IS A SUMMARY OF THE
WORK DONE DURING THE YEAR.

6. THE SIXTH PART OF THE
REPORT IS A SUMMARY OF THE
WORK DONE DURING THE YEAR.

CLOSED

County LEC # 90
Facility & # City of Helena
Closure Landfarm
Finan Assur Liner
GW Corr Meas Methane
GW Monitoring O & M
GW Reports Run - On
Inspections
Other





Hydrometrics, Inc.
consulting scientists and engineers

3020 Bozeman Avenue
Helena, MT 59601
(406) 443-4150
Fax: (406) 443-4155
www.hydrometrics.com

May 31, 2007

Ms. Mary Louise Hendrickson
Environmental Science Specialist
Montana Department of Environmental Quality
Permitting and Compliance Division
Waste & Underground Tank Management Bureau
Solid Waste Program
P.O. Box 200901
Helena, MT 59620

Dear Mary Louise,

Enclosed for your review are the proposed monitoring sites and analytical schedule for the June 2007 semiannual groundwater monitoring at the Helena Landfill. This sampling regime is as listed in the approved Revised Sampling and Analysis Plan for the City of Helena (Hydrometrics, 2006). Sampling personnel will be attempting to sample the week of June 10. Please call if you have any questions or comments.

Sincerely,

Jodi Bingham, P.E.
Environmental Engineer/Chemist

c: John Rundquist, City of Helena
Ben Sautter, City of Helena
Mike Wignot, Hydrometrics

RECEIVED

JUN 01 2007

DEPT. OF ENVIRO. QUALITY
WASTE & UNDERGROUND TANK
MANAGEMENT BUREAU

HELENA LANDFILL
JUNE 2007 SAMPLE SITE AND PARAMETER LIST

Site Name	Parameter
Monitoring Wells ⁽¹⁾	
INF. GALLERY	Table 1 VOC's only
MPC-2	Table 1 VOC's only
HL-90-2	Table 1
HL-94-1	Table 1
HL-94-3	Table 1
83-6	Table 1
HL-90-3	Table 1
HL-90-3 (duplicate)	Table 1
HL-94-2	Table 1
I-1	Water level only
HL-99-1	Table 1
HL-99-2	Table 1
HL-90-1	Table 1
HL-99-3	Table 1
MPC-1	Table 1
I-4	Table 1 VOC's only
EPA-1	Table 1
MPC-5	Table 1
Residential Wells:	
5	Table 1 VOC's only
16	Table 1 VOC's only
40	Table 1 VOC's only
48	Table 1 VOC's only
52	Table 1 VOC's only
57	Table 1 VOC's only
62	Table 1 VOC's only
90	Table 1 VOC's only
Quality Control:	
Trip Blank	Table 1
Rinsate Blank	Table 1

(1) Monitoring wells are listed in the order to be sampled.

TABLE 1. SUMMARY OF DATA FOR THE 1990-1991 SEASON

Station	Depth (m)	Temperature (°C)	Salinity (PSU)	Density (kg/m³)	Current (cm/s)	Direction (°)	Speed (cm/s)	Direction (°)	Speed (cm/s)
1	10	18.5	35.2	1025.2	1.5	135	1.5	135	1.5
2	20	18.0	35.1	1025.1	1.5	135	1.5	135	1.5
3	30	17.5	35.0	1025.0	1.5	135	1.5	135	1.5
4	40	17.0	34.9	1024.9	1.5	135	1.5	135	1.5
5	50	16.5	34.8	1024.8	1.5	135	1.5	135	1.5
6	60	16.0	34.7	1024.7	1.5	135	1.5	135	1.5
7	70	15.5	34.6	1024.6	1.5	135	1.5	135	1.5
8	80	15.0	34.5	1024.5	1.5	135	1.5	135	1.5
9	90	14.5	34.4	1024.4	1.5	135	1.5	135	1.5
10	100	14.0	34.3	1024.3	1.5	135	1.5	135	1.5
11	110	13.5	34.2	1024.2	1.5	135	1.5	135	1.5
12	120	13.0	34.1	1024.1	1.5	135	1.5	135	1.5
13	130	12.5	34.0	1024.0	1.5	135	1.5	135	1.5
14	140	12.0	33.9	1023.9	1.5	135	1.5	135	1.5
15	150	11.5	33.8	1023.8	1.5	135	1.5	135	1.5
16	160	11.0	33.7	1023.7	1.5	135	1.5	135	1.5
17	170	10.5	33.6	1023.6	1.5	135	1.5	135	1.5
18	180	10.0	33.5	1023.5	1.5	135	1.5	135	1.5
19	190	9.5	33.4	1023.4	1.5	135	1.5	135	1.5
20	200	9.0	33.3	1023.3	1.5	135	1.5	135	1.5
21	210	8.5	33.2	1023.2	1.5	135	1.5	135	1.5
22	220	8.0	33.1	1023.1	1.5	135	1.5	135	1.5
23	230	7.5	33.0	1023.0	1.5	135	1.5	135	1.5
24	240	7.0	32.9	1022.9	1.5	135	1.5	135	1.5
25	250	6.5	32.8	1022.8	1.5	135	1.5	135	1.5
26	260	6.0	32.7	1022.7	1.5	135	1.5	135	1.5
27	270	5.5	32.6	1022.6	1.5	135	1.5	135	1.5
28	280	5.0	32.5	1022.5	1.5	135	1.5	135	1.5
29	290	4.5	32.4	1022.4	1.5	135	1.5	135	1.5
30	300	4.0	32.3	1022.3	1.5	135	1.5	135	1.5
31	310	3.5	32.2	1022.2	1.5	135	1.5	135	1.5
32	320	3.0	32.1	1022.1	1.5	135	1.5	135	1.5
33	330	2.5	32.0	1022.0	1.5	135	1.5	135	1.5
34	340	2.0	31.9	1021.9	1.5	135	1.5	135	1.5
35	350	1.5	31.8	1021.8	1.5	135	1.5	135	1.5
36	360	1.0	31.7	1021.7	1.5	135	1.5	135	1.5
37	370	0.5	31.6	1021.6	1.5	135	1.5	135	1.5
38	380	0.0	31.5	1021.5	1.5	135	1.5	135	1.5
39	390	-0.5	31.4	1021.4	1.5	135	1.5	135	1.5
40	400	-1.0	31.3	1021.3	1.5	135	1.5	135	1.5
41	410	-1.5	31.2	1021.2	1.5	135	1.5	135	1.5
42	420	-2.0	31.1	1021.1	1.5	135	1.5	135	1.5
43	430	-2.5	31.0	1021.0	1.5	135	1.5	135	1.5
44	440	-3.0	30.9	1020.9	1.5	135	1.5	135	1.5
45	450	-3.5	30.8	1020.8	1.5	135	1.5	135	1.5
46	460	-4.0	30.7	1020.7	1.5	135	1.5	135	1.5
47	470	-4.5	30.6	1020.6	1.5	135	1.5	135	1.5
48	480	-5.0	30.5	1020.5	1.5	135	1.5	135	1.5
49	490	-5.5	30.4	1020.4	1.5	135	1.5	135	1.5
50	500	-6.0	30.3	1020.3	1.5	135	1.5	135	1.5
51	510	-6.5	30.2	1020.2	1.5	135	1.5	135	1.5
52	520	-7.0	30.1	1020.1	1.5	135	1.5	135	1.5
53	530	-7.5	30.0	1020.0	1.5	135	1.5	135	1.5
54	540	-8.0	29.9	1019.9	1.5	135	1.5	135	1.5
55	550	-8.5	29.8	1019.8	1.5	135	1.5	135	1.5
56	560	-9.0	29.7	1019.7	1.5	135	1.5	135	1.5
57	570	-9.5	29.6	1019.6	1.5	135	1.5	135	1.5
58	580	-10.0	29.5	1019.5	1.5	135	1.5	135	1.5
59	590	-10.5	29.4	1019.4	1.5	135	1.5	135	1.5
60	600	-11.0	29.3	1019.3	1.5	135	1.5	135	1.5
61	610	-11.5	29.2	1019.2	1.5	135	1.5	135	1.5
62	620	-12.0	29.1	1019.1	1.5	135	1.5	135	1.5
63	630	-12.5	29.0	1019.0	1.5	135	1.5	135	1.5
64	640	-13.0	28.9	1018.9	1.5	135	1.5	135	1.5
65	650	-13.5	28.8	1018.8	1.5	135	1.5	135	1.5
66	660	-14.0	28.7	1018.7	1.5	135	1.5	135	1.5
67	670	-14.5	28.6	1018.6	1.5	135	1.5	135	1.5
68	680	-15.0	28.5	1018.5	1.5	135	1.5	135	1.5
69	690	-15.5	28.4	1018.4	1.5	135	1.5	135	1.5
70	700	-16.0	28.3	1018.3	1.5	135	1.5	135	1.5
71	710	-16.5	28.2	1018.2	1.5	135	1.5	135	1.5
72	720	-17.0	28.1	1018.1	1.5	135	1.5	135	1.5
73	730	-17.5	28.0	1018.0	1.5	135	1.5	135	1.5
74	740	-18.0	27.9	1017.9	1.5	135	1.5	135	1.5
75	750	-18.5	27.8	1017.8	1.5	135	1.5	135	1.5
76	760	-19.0	27.7	1017.7	1.5	135	1.5	135	1.5
77	770	-19.5	27.6	1017.6	1.5	135	1.5	135	1.5
78	780	-20.0	27.5	1017.5	1.5	135	1.5	135	1.5
79	790	-20.5	27.4	1017.4	1.5	135	1.5	135	1.5
80	800	-21.0	27.3	1017.3	1.5	135	1.5	135	1.5
81	810	-21.5	27.2	1017.2	1.5	135	1.5	135	1.5
82	820	-22.0	27.1	1017.1	1.5	135	1.5	135	1.5
83	830	-22.5	27.0	1017.0	1.5	135	1.5	135	1.5
84	840	-23.0	26.9	1016.9	1.5	135	1.5	135	1.5
85	850	-23.5	26.8	1016.8	1.5	135	1.5	135	1.5
86	860	-24.0	26.7	1016.7	1.5	135	1.5	135	1.5
87	870	-24.5	26.6	1016.6	1.5	135	1.5	135	1.5
88	880	-25.0	26.5	1016.5	1.5	135	1.5	135	1.5
89	890	-25.5	26.4	1016.4	1.5	135	1.5	135	1.5
90	900	-26.0	26.3	1016.3	1.5	135	1.5	135	1.5
91	910	-26.5	26.2	1016.2	1.5	135	1.5	135	1.5
92	920	-27.0	26.1	1016.1	1.5	135	1.5	135	1.5
93	930	-27.5	26.0	1016.0	1.5	135	1.5	135	1.5
94	940	-28.0	25.9	1015.9	1.5	135	1.5	135	1.5
95	950	-28.5	25.8	1015.8	1.5	135	1.5	135	1.5
96	960	-29.0	25.7	1015.7	1.5	135	1.5	135	1.5
97	970	-29.5	25.6	1015.6	1.5	135	1.5	135	1.5
98	980	-30.0	25.5	1015.5	1.5	135	1.5	135	1.5
99	990	-30.5	25.4	1015.4	1.5	135	1.5	135	1.5
100	1000	-31.0	25.3	1015.3	1.5	135	1.5	135	1.5

NOTE: All data were collected during the 1990-1991 season.

Closed

LEC

County

Facility & #

City of Helena #90

Closure

Finan Assur

GW Corr Meas

GW Monitoring

GW Reports

Inspections

Other:

Landfarm

Liner

Methane

O & M

Run - On





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November 27, 2007

Ms. Mary Louise Hendrickson
Environmental Science Specialist
Montana Department of Environmental Quality
Permitting and Compliance Division
Waste & Underground Tank Management Bureau
Solid Waste Program
P.O. Box 200901
Helena, MT 59620

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Waste & Underground
Tank Management Bureau

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Dept. of Enviro. Quality
Waste & Underground
Tank Management Bureau

Dear Mary Louise,

Enclosed for your review are the proposed monitoring sites and analytical schedule for the December 2007 semiannual groundwater monitoring at the Helena Landfill. This sampling regime is as listed in the approved Revised Sampling and Analysis Plan for the City of Helena (Hydrometrics, 2006). Sampling personnel will be attempting to sample the week of December 17, 2007. Please call if you have any questions or comments.

Sincerely,

Jodi Bingham, P.E.
Environmental Engineer/Chemist

c: John Rundquist, City of Helena
Ben Sautter, City of Helena
Mike Wignot, Hydrometrics

**CITY OF HELENA LANDFILL
LICENSE NUMBER 90**

**DATA VALIDATION REPORT FOR
GROUNDWATER ORGANIC SAMPLES
COLLECTED IN SEPTEMBER 2007**

OCTOBER 2007

HYDROMETRICS

**IS LOCATED IN THE GROUNDWATER
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BOX NUMBER 31**

RECEIVED 10/12/2007

**CITY OF HELENA LANDFILL
LICENSE NUMBER 90**

**STATISTICAL EVALUATION OF MARCH 2007
AND JUNE 2007 GROUNDWATER QUALITY
DATA**

AUGUST 2007

HYDROMETRICS

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FROM THE FIRST SETTLEMENT
TO THE PRESENT TIME

BY

JOSEPH NEASE

WITH A HISTORY OF THE
CITY OF NEWTON
AND THE TOWN OF
LYNN

1850

**CITY OF HELENA LANDFILL
LICENSE NUMBER 90**

**DATA VALIDATION REPORT FOR
GROUNDWATER ORGANIC SAMPLES
COLLECTED IN MARCH 2007**

APRIL 2007

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TO THE PRESENT TIME
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JOHN H. COLEMAN

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CITY OF BOSTON
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Fax: (406) 443-4155
www.hydrometrics.com

March 1, 2007

Ms. Mary Hendrickson
Environmental Science Specialist
Montana Department of Environmental Quality
Permitting and Compliance Division
Waste & Underground Tank Management Bureau
Solid Waste Program
P.O. Box 200901
Helena, MT 59620

Dear Mary,

Enclosed for your review are the proposed monitoring sites and analytical schedule for the March 2007 quarterly groundwater monitoring at the Helena Landfill. Sampling personnel will be attempting to sample the week of March 19. Well 5 is being sampled as part of the City's Action Plan for tetrachloroethene (PCE) in downgradient domestic wells. Please call if you have any questions or comments.

Sincerely,

Jodi Bingham, P.E.
Environmental Engineer/Chemist

c: John Rundquist, City of Helena
Ben Sautter, City of Helena
Mike Wignot, Hydrometrics

County LEC Closed
Facility & # City of Helena #90
Closure Landfarm
Finan Assur Liner
GW Corr Meas Methane
GW Monitoring O & M
GW Reports Run - On
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Other: _____

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MAR 02 2007

DEPT. OF ENVIRO. QUALITY
WASTE & UNDERGROUND TANK
MANAGEMENT BUREAU

**HELENA LANDFILL
MARCH 2007 SAMPLE SITE AND PARAMETER LIST**

Site Name	Parameter
Monitoring Wells ⁽¹⁾	
HL-99-3	Table 1 VOC's only
HL-99-2	Table 1 VOC's only
HL-99-1	Table 1 VOC's only
HL-90-1	Table 1
5	Table 1 VOC's only

(1) Wells are listed in the order to be sampled.

Correspondence Slip

Project ID: _____

Requested: 1-2-07Needed By: 1-3-07Originator: *nick*

Org(s)/Mail Code: _____

REVIEW
ROUTING

Name

Task

Initial/Date

Darrell

Das, *1/2/07**Pat*

FAK, *1/2/07**Rick**revised**RT*, *1-2-07**Darrell*

_____, _____

Mail original via:

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Proof Path: G:\WUT\ *see letter*Mail copy of enclosures
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